

THAT WHICH IS CLAIMED IS:

- 5 *Sub a1* 1. A computer implemented method for managing mobile workers in an object oriented programming environment comprising the steps of:
- classifying within a database of a computer a plurality of target objects corresponding to facilities assets to be worked on by a mobile worker;
- defining the attributes of each target object, including the tasks to be performed on each target object;
- 10 scheduling mobile workers for the tasks to be performed on target objects by running a rule engine to determine the algorithms and heuristics to be used to schedule mobile workers for the tasks to be performed; and
- 15 outputting a schedule of jobs to the mobile workers.
2. A method according to Claim 1, and further comprising the step of classifying the plurality of target objects within a server computer and outputting the schedule to a client computer
- 5 operated by a mobile worker.
3. A method according to Claim 1, and further comprising the step of communicating with a mobile worker via a telecommunications link and a hand-held, web based device.
4. A method according to Claim 1, and further comprising the step of building a plurality of user configured system agents for one of at least automating work planning, scheduling tasks to workers,

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workers, stores management information, end-of-shift management information.

A method according to claim 1, wherein the method comprises a forward search algorithm which uses different rule sets.

A method according to claim 1, wherein the method determines a priority value for each job based on parameters to be used by the scheduling algorithm.

A method according to claim 1, wherein the scheduling algorithm is a greedy scheduling algorithm that assigns jobs to workers in a number of iterations, where in each iteration a number of jobs are assigned to the worker with the lowest utility of n jobs on the basis of choosing assignments from the set of available assignments of the workers' schedule.

A method according to claim 1, wherein the scheduling algorithm is a greedy scheduling algorithm that assigns jobs to mobile workers based on their current location and an unassigned job queue.

A method according to claim 1, wherein the scheduling algorithm is a greedy scheduling algorithm that assigns jobs to workers based on their current location and utility.

A method according to claim 1, wherein the scheduling algorithm is a greedy scheduling algorithm that assigns jobs to workers based on their current location and utility, and the job queue is ordered by increasing utility.

11. A method according to Claim 9, wherein the unassigned job queue is ordered the lowest utility to the highest utility.

12. A method according to Claim 1, wherein the algorithm comprises a rescheduling algorithm that is operable by determining the utility of unassigned jobs and rescheduling the assigned jobs, replacing some
5 assigned jobs with unassigned jobs on workers' schedules, based on an added utility.

13. A method according to Claim 1, and further comprising the step of maintaining a historical database that reflects all changes in system configuration, including targets and tasks, based on
5 running system agents and on user interactions.

14. A method according to Claim 1, and further comprising the step of viewing status and changes of task, system agents and schedules of jobs within a business viewer.

15. A method according to Claim 1, and further comprising the step of maintaining a system log of all activities.

16. A method according to Claim 1, and further comprising the step of maintaining a policy database that allows users to configure system agents and a plurality of use cases corresponding to human and
5 system interaction and definitions.

17. A method according to Claim 1, and further comprising the step of building definitions of targets and their tasks, according to the

21. A method according to Claim 20, wherein said step of simulating further comprises the step of:

- a) setting policy database values;
- b) simulating resultant operations of
5 system agents and software components and viewing the results;
- c) iterating between steps a and b to view the impact of setting policy database variables to various values; and
- 10 d) using the results of a through c to determine the optimum values to use for the policy values in a live operational system.

22. A method of managing mobile workers comprising the steps of:

- creating a job classification within a
planning agent module of a computer corresponding to a
5 collection of tasks to schedule, and the worker skills and material required to complete the tasks;

based on a plurality of rules contained within a rule engine, matching the worker skills with the tasks to be scheduled; and

- 10 outputting a schedule for mobile worker management.

23. A method according to Claim 22, and further comprising the step of matching worker skill resources with the demands of a job within a scheduler agent of the computer.

24. A method according to Claim 22, and further comprising the step of tracking the location and status of a workforce via a dispatcher agent of the computer.

25. A method according to Claim 22, and further comprising the step of issuing system events within the computer and determining how the status of active job agents within the computer respond via a job state manager agent contained within the computer.

26. A computer implemented method for managing mobile workers in an object oriented programming environment comprising the steps of:

classifying within a database of a computer a plurality of target objects corresponding to facilities assets to be worked on by a mobile worker;

defining the attributes of each target object, including the tasks to be performed on each target object;

scheduling mobile workers for the tasks to be performed on target objects by running a rule engine to determine the algorithms and heuristics to be used to schedule mobile workers for the tasks to be performed; and

establishing a simulator database and running a simulator program to establish policy values in a simulation of the working of a system environment to determine optimum policy values for a given business.

27. A method according to Claim 26, and further comprising the step of classifying the plurality of target objects within a server computer and outputting the schedule to a client computer operated by a mobile worker.

28. A method according to Claim 26, and further comprising the step of communicating with a mobile worker via a telecommunications link and a hand-held, web based device.

29. A method according to Claim 26, and further comprising the step of building a plurality of user configured system agents for one of at least automating work planning, scheduling tasks to workers, 5 dispatching workers, stores management, job state management or end-of-shift management.

30. A method according to Claim 29, wherein the rule engine comprises a forward chaining rule engine with different rule sets for each system agent.

31. A method according to Claim 26, wherein the rule engine determines a primary scheduling algorithm and parameters to be used for scheduling jobs to workers.

32. A method according to Claim 31, wherein the primary scheduling algorithm comprises a brute force scheduling algorithm that is operable by determining an n number of jobs and m workers, trying 5 all combinations of n jobs on the schedules for m workers and choosing assignments that maximize the total utility of the workers' schedules.

33. A method according to Claim 31, wherein the primary scheduling algorithm comprises a round robin scheduling algorithm that is operable by assigning jobs to mobile workers sequentially after 5 ordering an unassigned job queue based on a change in job utility.

34. A method according to Claim 31, wherein the primary scheduling algorithm comprises a scheduling algorithm that assigns jobs to workers that maximize the job's utility.

35. A method according to Claim 34, wherein the unassigned job queue is ordered from the highest utility to the lowest utility.

36. A method according to Claim 34, wherein the unassigned job queue is ordered the lowest utility to the highest utility.

37. A method according to Claim 26, wherein the algorithm comprises a rescheduling algorithm that is operable by determining the utility of unassigned jobs and rescheduling the assigned jobs, replacing some
5 assigned jobs with unassigned jobs on workers' schedules, based on an added utility.

38. A method according to Claim 26, and further comprising the step of maintaining a historical database that reflects all changes in system configuration, including targets and tasks, based on
5 running system agents and on user interactions.

39. A method according to Claim 26, and further comprising the step of viewing status and changes of task, system agents and schedules of jobs within a business viewer.

40. A method according to Claim 26, and further comprising the step of maintaining a system log of all activities.

41. A method according to Claim 26, and further comprising the step of maintaining a policy database that allows users to configure system agents and a plurality of use cases corresponding to human and
5 system interaction and definitions.

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a plurality of target objects classified within a database of a computer corresponding to facilities assets to be worked on by a mobile worker, each target object having defined attributes, including the tasks to be performed on each target object; and a rule engine contained within the computer that is operable to determine the algorithms and heuristics to be used to schedule mobile workers for the tasks to be performed.

45. A system according to Claim 43, and further comprising a plurality of user agents defined within the computer for one of at least automating work planning, scheduling tasks to workers, dispatching tasks to workers, dispatching workers, stores management, job state management or end-of-shift management.

46. A system according to Claim 43, wherein
said algorithm comprises a brute force scheduling
algorithm that is operable by determining an n number
of jobs and m workers, trying all combinations of n
5 jobs on the schedules for m workers and choosing
assignments that maximize the total utility of the
schedules for the workers.

47. A system according to Claim 43, wherein
the algorithm comprises a round robin scheduling
algorithm that is operable by assigning jobs to mobile
workers sequentially after ordering an unassigned job
5 queue based on a change in job utility.

48. A system according to Claim 43, and
further comprising a policy database having rules and
data for user configuring system agents and use cases
corresponding to human and system interaction and
5 definitions.

49. A system according to Claim 43, and
further comprising a simulator database and simulation
program for establishing optimum policy values.